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EVALUATION OF TELEPROMPTER GROUP COMMUNICATIONS EQUIPMENT IN ARMY INSTRUCTION

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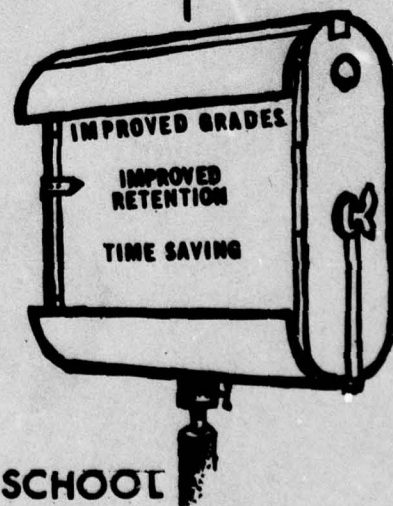
Prepared by **UNITED STATES ARMY ORDNANCE GUIDED MISSILE SCHOOL REDSTONE ARSENAL, ALABAMA**

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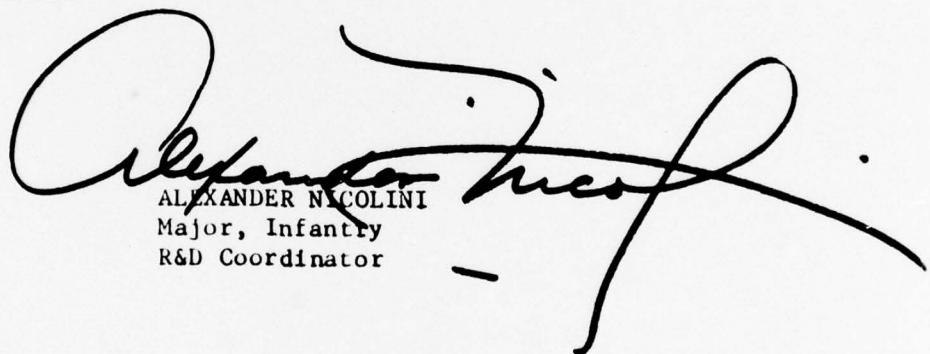PERI-1J   8 August 1979

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EVALUATION OF TELEPROMPTER GROUP COMMUNICATIONS EQUIPMENT IN ARMY ~~TRAINING~~ Instruction.

Prepared by
Teleprompter Branch
Training Support Division
U.S. Army Ordnance Guided Missile School
Redstone Arsenal, Alabama

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PREFACE

This study is a report of the preliminary results of the use of group communications equipment in technical instruction at the US Army Ordnance Guided Missile School. It is the first such study made of the use of this equipment in either military or civilian institutions. The program represents the coordinated efforts of selected members of the staff and faculty of OGMS and the TelePrompTer Corporation.

The Army Ordnance Guided Missile School, since its beginning in 1952, has always worked to develop, evaluate, and use new techniques and methods which would enable the school to produce a better qualified graduate and, at the same time, conduct training in a shorter period of time. The teleprompter method, discussed in this study, is proving to be a significant step forward in the field of military training.

The concept of using teleprompter group communication equipment for instruction is credited to Colonel H. S. Newhall, Commandant, 1955-1959, USA OGMS, Redstone Arsenal, Alabama. His imagination and initiative was prompted by an article by Rufus Jarman, "Sure Cure for Stage Fright", in the September 14, 1957 issue of the Saturday Evening Post. The article gave rise to the idea that by using this public speaking and television aid in military instruction, a solution to the problem of better learning and reduction of training time might be found.

Colonel Newhall and Dr. C. D. Leatherman, Educational Advisor contacted Mr. Irving B. Kahn, President of TelePrompTer Corporation; Mr. Hubert J. Schlafly, Jr., Vice President in charge of Engineering, and other members of their staff. After a cordial reception by the company and a detailed demonstration of their equipment, it was decided to bring the equipment to the USAOGMS. The equipment was demonstrated to the staff and faculty in December 1957. By early January 1958, equipment had been purchased, installed, and was being used on a limited scale. Plans were also made for a complete evaluation of the use of teleprompter equipment and to determine the best uses for technical instruction.

Three studies of the use of this equipment in technical instruction were planned. These studies were primarily designed to determine the following: to evaluate student learning when the subject matter is presented with teleprompter equipment; to evaluate the amount of student retention when subject matter is presented with teleprompter equipment; to evaluate techniques of reducing training time for lectures, conferences and demonstration type classroom presentations.

Based on the results of this study, it is believed that similar studies, perhaps even duplicative, should be conducted by other U.S. Army Service Schools using the same techniques. With training problems of the magnitude now present in the Army (and the situation would be multiplied thousands of times over in mobilization), any improvement in efficiency of training or speed-up in training time or improvement in the retention on the part of students would pay great dividends.

EVALUATION SUMMARY

BACKGROUND

This evaluation study was conducted at the US Army
Ordnance Guided Missile School, Redstone Arsenal, Alabama
from May 1958 to June 1959. The study is concerned with
the evaluation of teleprompter and group communications
equipment used to present technical instruction.

PROCEDURE

One of the more difficult courses in OGMS, the Acquisition
and Computer Course for the Nike-Hercules missile, was selected
for the evaluation studies. Three instructional blocks of this
course were singled out for use in three separate evaluation
studies. These selected blocks contained Fundamentals of
Electronics, Plan Position Indicator (radar instruction) and
Steering-Computer for the Nike-Hercules missile system.

Each of the three studies consisted of an Experimental
Group (students to receive the selected three blocks of
instruction presented with teleprompter and associated audio-visual
aids), and a Control Group (students who would receive the same
instruction, but presented entirely in the conventional manner).

In order to use the teleprompter equipment effectively,
each hour of instruction was written in manuscript form and
typed on video script for use in the teleprompters.

The original manuscripts, from which the video scripts
are typed, are prepared by regular instructors who are assigned
to the Evaluation Group as technical writers. These writers
develop the manuscripts from a variety of sources, including
recordings of conventional classroom presentations, existing
lesson plans, and pertinent reference material. Each script

iv

is reviewed and edited to eliminate excess words and to prevent the instructor from rambling or straying from the scope of his presentation. Training aids used to support the classroom presentations using teleprompter equipment are designed by these technical writers and fabricated within the School.

A total of 97 students participated in the Evaluation Studies: 51 in the Experimental Groups and 46 in the Control Groups.

RESULTS

Based on our experiments to date we have demonstrated:

(1) For lecture, conference, and demonstration type classroom presentations, a 27% time saving.

(2) A 5% improvement in test grades.

(3) A 7% increase in retention of subject matter, when retested nine weeks later.

RECOMMENDATION

That based on these preliminary results, the use of teleprompting equipment continue to be evaluated at USAOGMS and at other military and civilian training institutions with a view to adaptation as a standard teaching technique for lecture conference and demonstration type instruction.

EVALUATION OF TELEPROMPTER GROUP COMMUNICATION EQUIPMENT
IN ARMY INSTRUCTION

CONTENTS

Chapter 1

INTRODUCTION

Chapter 2

EXPERIMENTAL STUDENTS

Chapter 3

TRAINING AND TESTING

Chapter 4

COMPARISON OF REGULAR AND TELEPROMPTER INSTRUCTION

Chapter 5

CONCLUSIONS AND RECOMMENDATIONS

TABLES

Chapter I

INTRODUCTION

PURPOSE OF THE STUDY

The major objectives of this study were to develop and
evaluate improved methods of integrated group communication
for military training, by use of teleprompter and associated
audio-visual aids.[1] The studies were conducted at the US
Army Ordnance Guided Missile School, Redstone Arsenal, Alabama.
This installation provided teleprompter equipment, instructional
facilities, trainees and personnel to conduct these studies.

Representatives of the TelePrompTer Corporation were
present to advise in the use of the equipment.

DESIGN OF RESEARCH

The highly technical and complex subject matter of the
Acquisition and Computer Course for the Nike-Hercules Missile
System, was used in this study. The purpose of this course
is to train enlisted personnel to inspect, test, and perform
field maintenance on NIKE HERCULES/AJAX acquisition radar
system, computer system, and associated field maintenance test
equipment. MOS for which trained: Acquisition Radar Repairman
NIKE 252.10. Civilian students (Federal employees) also attended
this course. For comparison between teleprompter and conventional
instruction, 93 hours of instruction of the 1056 hours contained
in this course were selected. These representative hours
contained introductory type material, general orientation,
fundamentals of electronics, and detailed discussion of the plan
position indicator, and the steering computer for the Nike-Hercules
missile system.

[1] See Appendix A for discussion of teleprompter equipment.

This study is the consolidated results of three (3) evaluation studies. A total of 97 students, both military and civilian, participated in these studies: 51 in the Experimental Groups and 46 in the Control Groups.

The Control Groups received all of their instruction by conventional methods. The Experimental Groups received three of their twelve blocks of instruction by the teleprompter method, and the balance by conventional methods.

In order to use the teleprompter equipment effectively, each hour of instruction was written in manuscript form and typed on video script for use in the teleprompter.

The original manuscripts, from which the video scripts were typed, were prepared by regular instructors assigned to the Evaluation Group as technical writers.

The comparisons and measurements made during the study were: degree of student learning, degree of student retention, and time savings as a result of the use of teleprompting equipment. In addition, various classifications of instructors, ranging from superior to below average, were used to present both experimental and conventional instruction. Only those instructors for whom previous ratings were available were selected.

EXPERIMENTAL FACILITIES

The same standard type OGMS classroom was used for both the experimental and control groups. The experimental classroom was modified to accommodate the teleprompting equipment.

2

The major changes in the experimental classroom were rear screen projection, and three teleprompters with control apparatus. Black lights, magnetic green chalk boards, flock boards, 16mm projectors, lectern, etc., were standard equipment for both groups. Details of both classrooms are discussed in Appendix B.
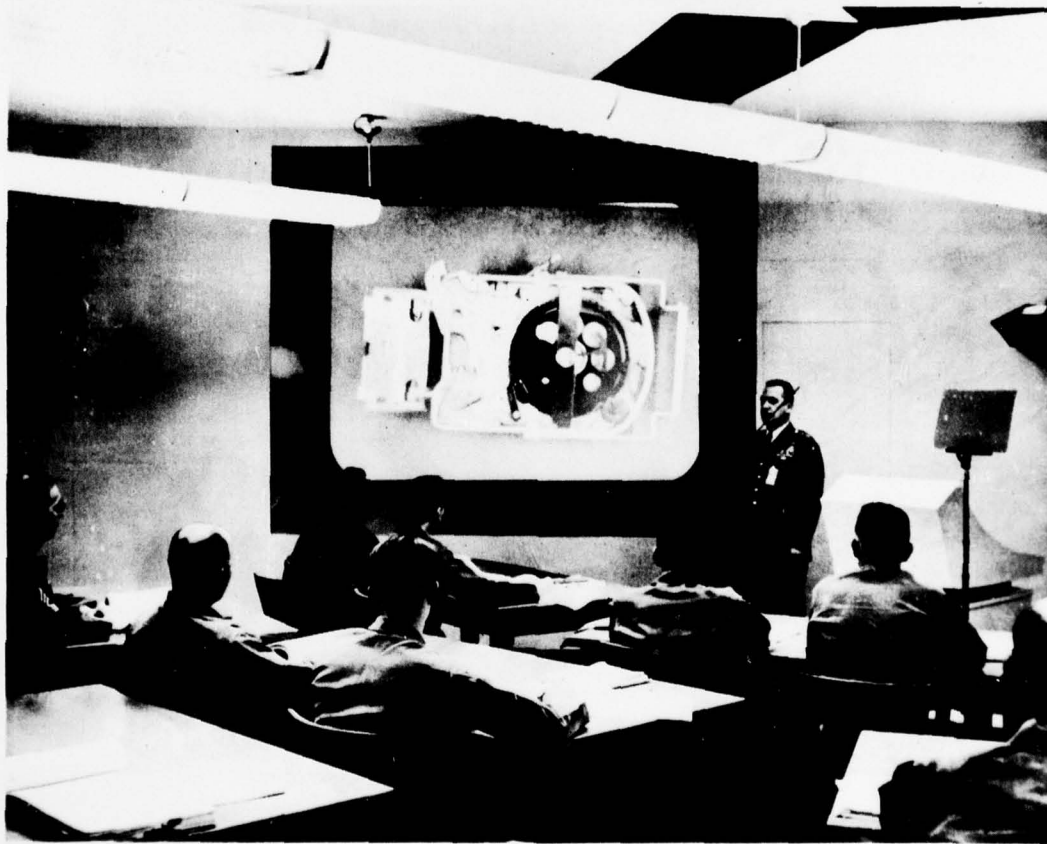
Experimental Classroom
Figure 1

LIMITATIONS

The limitations of the studies were:

(1) Lack of control of the student selection. Due to the MOS of the military, and scheduling of civilian students who are assigned to operating Nike sites, it was not possible to match each of the groups. However, the overall background of the groups was found to be essentially the same.

(2) The program of instruction designed to train the student for MOS 252.10 could not be changed for this experiment.

(3) Due to the time factor and small number of students in each class, these results are based on a relatively small sample. For this reason the results contained in this report are considered to be preliminary.

Chapter 2

EXPERIMENTAL STUDENTS

SOURCE OF STUDENTS

Students participating in the Evaluation Studies
were unselected and enrolled in the course as if under
normal circumstances. The size of classes varied from
12 to 19 students.

A total of 97 students participated in the Evaluation
Studies. 60 students were enlisted military personnel,
ranging in rank from PVT (E-2) to M/SGT (E-7). All of the
EM were graduates of the eleven week, Basic Electronic
Course, presented by the USA Signal School, Ft Monmouth,
N. J. These subjects were well trained in electronic
theory, but had little practical experience.

The 37 civilian students were from various missile
sites and arsenals. The majority of the civilians had a
thorough practical background in electronics, but little
formal training in theory. Civilian students attending
this school, in preparation for specific jobs, could expect
substantial promotions when returning to their sites or
installations.

COMPARISON OF EXPERIMENTAL AND CONTROL GROUPS

The background information used for comparison of the
Experimental and Control Groups consisted of the Army General
Classification Test (civilian version for the civilian
subjects), the USA OGMS Electronic Inventory Achievement
Test, student records, and information cards to determine
years of school and age.

Electronic Aptitude, Electronic Information, and Mechanical
Aptitude test results were available only for military students.
Detailed background information is contained in Appendix C.
Table 1 summarizes the data used for background comparisons.

Table 1

STUDENT BACKGROUND DATA

SUBJECT	EXPERIMENTAL	CONTROL	DIFFERENCE
Army General Classification Test	123.2	122.1	1.1
Inventory Exam (Fundamentals Electronics)	56.7	58.3	1.6
Years of Schooling	12.2	12.5	.3
Age	28.7	30.3	1.6
Electrical Aptitude [a]	121.8	127.8	6.0
Electronic Information [a]	122.4	129.3	6.9
Mechanical Aptitude [a]	120.5	124.1	3.6

a) Results available only for military students

Mean scores achieved on the Army General Classification
Test and Electronic Inventory Achievement Tests were found
to be essentially the same, as were the means for schooling
and age. The Experimental Groups averaged lower scores for
the Electrical Aptitude, Electronic Information, and Mechanical
Aptitude Tests.

Biographical information on the students was obtained by
means of personal interviews.

Interviewers were primarily concerned with the size
of subject's high school (determined by the number of
students in the graduating class), whether the subject
plans to stay in the Army (or in the case of civilians to
stay in Federal Service), and the student's career goal
as a military man or civilian. Career goals disclosed
by the student can be clearly placed in three categories:
missile electronics, manager/professional, and trade/
agriculture. Table 2 summarizes this biographical information.

Personnel conducting the student interview used a
Student Interview Sheet to insure standardization of interview
questions and procedures. The Student Interview Sheet is
inclosed in Appendix D.

Table 2

BIOGRAPHICAL INFORMATION

SUBJECT	EXPERIMENTAL	CONTROL
Size of High School		
Large 500 /	47%	42%
Medium 100-500	41%	44%
Small 100 -	12%	14%
Plan to Stay in Army?		
Yes	35%	49%
No	51%	46%
Undecided	14%	5%
Career Goal		
Missile Electronics	90%	68%
Manager/Professional	8%	30%
Trade/Agriculture	2%	2%

Chapter 3

TRAINING AND TESTING

SUBJECT MATTER

Programs of Instruction (POI's) were reviewed in a wide
variety of courses within USAOGMS to select a course that
would offer a fair and equitable opportunity for these
evaluation studies. The Acquisition and Computer Course
for Nike-Hercules Missile System was selected. The hours
of instruction in this course totaled 1056. Of these, 93
hours of instruction were singled out for use in the
Evaluation Studies, excluding 9 hours for examinations.
Each experimental period consisted of 102 hours. The
evaluation study was repeated 3 times, with only minor
modifications for improving in techniques or procedures.

A portion of the course containing 12 blocks of instruction
was selected. The three blocks, of these 12, chosen for the
study were: Fundamentals of Electronics (37 hours), which is
selected fundamental electronics subjects, considered to be a
prerequisite for the remaining 11 blocks of the course; Plan
Position Indicators (21 hours), which is a radar indicator
that displays a map of the territory surrounding the radar set;
Steering Computer (35 hours), which is a section of the Nike
Computer that continuously determines steering errors in the
missile flight path and issues orders to direct the missile on
a flight path that will intercept its target.

This evaluation report concerns 279 experimental hours
of lecture, conference and demonstration type instruction,
using a Control and Experimental Group of students, plus 27
hours of examinations. These hours of instruction represent
approximately 10% of the total hours of instruction in the
course. The program of instruction is contained in Appendix E.

INSTRUCTOR SELECTION

Criteria were established for the selection of instructors
to present the material used in both the Experimental and
Control Groups of the Evaluation Studies. The instructors'
ratings for each block, in each group, ranged from superior
to below average. Instructor ratings were based on prior
classroom performance evaluations compiled by segments other
than the Evaluation Group.

PREPARATION OF MATERIALS

An organization consisting of selected members of the
staff of USAQGMS and representatives of the TelePrompTer
Corporation was established. The mission of the group was
to conduct an evaluation of the use of teleprompter equipment
and to determine its best uses for technical instruction.
To perform this mission the group developed manuscripts, typed
video scripts, designed training aids, trained instructors in
the use of teleprompter, and supported and evaluated all
presentations. The organization, procedures, and functions of
the Teleprompter Task Group are discussed in Appendix F.

The original manuscripts, from which the teleprompter
scripts are typed, were prepared by selected OGMS instructors
who were assigned to the Evaluation Group as technical writers.
These writers developed the manuscripts from a variety of
sources, including recordings of conventional classroom
presentations, existing lesson plans, instructor interviews,
and pertinent reference material. Each script was carefully
reviewed and edited to eliminate excess words, and to prevent
the instructor from rambling or straying during his presentation.
Training aids used to support the classroom presentations using
teleprompting equipment were designed by these technical writers
and fabricated within the School. Appendix G contains the
procedures used to prepare teleprompter scripts.

TESTS USED IN THE EVALUATION

(1) Criterion Tests

Test questions were selected from proven questions available within the Acquisition and Computer Course. They were reviewed and approved by OGMS testing personnel. The questions were assembled into three 25 question tests and again reviewed and approved. The tests were given to the students immediately after each experimental block of instruction. Neither the technical writers nor the instructors had access to these tests at any time. The tests were administered by a member of the Teleprompter Task Group, assisted by both conventional and teleprompter instructors. Nine weeks after the initial instruction, the same tests were given again to test student retention of the material taught.

(2) Student-Reaction Questionnaire

A questionnaire was constructed to obtain student reactions to teleprompter instruction. The questionnaire was administered after the completion of the Steering Computer block (the final evaluation block in each study). The questionnaire contained 12 statements that the student was asked to agree or disagree with. The student had four possible choices -- he could agree, probably agree, probably disagree, or disagree. In general the students felt that the teleprompter classes were well presented, but that the material was presented too fast for adequate student participation. It is to be noted that scheduling problems caused the students to have a considerable amount of spare time. Students felt that they were being cheated of valuable instruction time and held teleprompter instruction responsible. The student questionnaire and student responses are inclosed as Appendix H.

(3) Instructor-Reaction Questionnaire

A questionnaire containing 12 statements was constructed and given to the teleprompter instructors to obtain their reactions to teleprompter instructing. The instructor had four possible choices: he could agree, probably agree, probably disagree,

10

or disagree. The questionnaire was administered after the instructor had completed teaching with teleprompter. In all cases the instructor felt that he had made better use of training aids when he taught with teleprompter; and, in general, that teleprompter helped but restricted him in his presentations. During the early phases of the evaluation a rumor spread that teleprompter would replace the qualified instructors. While the questionnaire was being administered the instructors submitted verbal comments to the affect that instructors must be qualified to teach with or without teleprompter. The instructor questionnaire and instructor responses are inclosed in Appendix I.

INSTRUCTION

Conventional Instruction. Instruction presented to the Control Group was presented by selected instructors, with backgrounds varying from superior to below average. The subject matter was presented from topic and sentence outline lesson plans. All of the instructors had satisfactorily completed the USAOGMS, 80 hour, Methods of Instruction Course, and had experience teaching in this subject area.

The classroom was a standard OGMS classroom with a seating capacity of 18 to 20 students. Magnetic chalkboards, lectern, chalkboard lights, front projection screen, vugraph projector, 16mm motion picture projector, 35mm slide projector and flockboards were available. Details of conventional classroom is discussed in Appendix B.

Experimental Instruction. Narrative type scripts were used in presenting subject matter to Experimental Groups. Again the instructors' abilities ranged from superior to below average. All of the Experimental Group instructors were graduates of the USAOGMS, 80 hour, Method of Instruction Course, and had experience teaching in the subject area. The instructors were individually coached in the use of teleprompter. Training was accomplished through rehearsals of the periods of instruction they would present.

The experimental classroom was a standard OCMS classroom with a seating capacity of 18 to 20 students. Magnetic chalkboards, lectern, white lights for chalkboard, blacklights for chalkboards and flockboard, TelePro 6000 projector, 6' x 8' rear screen, 4' x 8' flockboard, tape recorder, and a 16mm motion picture projector were available. Telemated (automated) effects used in the instruction were: classroom lights, telepro slide changes, blacklights for chalkboard and flockboard, control of tape recorder, and white lights for the chalkboards. Details of this classroom are included in Appendix B.

Supervision and Course Maintenance. The Control Groups received only standard type supervision which consisted of unscheduled spot evaluations by educational specialists, instructional division, and section training personnel.

Every hour of instruction was monitored in the Experimental Groups by a technical writer of the teleprompter evaluation group. After each block of subject matter presented with teleprompter, detailed comments concerning the script and instructor techniques were reviewed by technical writers for information to constantly improve the scripts. The instructors also received a critique based on their performance using teleprompter equipment. The monitor used the Methods Evaluation Form contained in Appendix J. In addition to evaluating the presentations, the monitor also kept instructional time records, and coordinated and supervised all activities in the experimental classroom.

Script revision and maintenance was performed by technical writers upon the completion of each block of instruction. Revision consisted of subject matter changes based on the monitor's comments regarding the readability of text and results of the item analyses of the tests. [1]/ Maintenance consisted of telemation reviews, checks on the physical condition of video scripts and training aids.

[1]/ Technical writers had full access to monitor's comments. They were not informed as to which questions were missed but were told what areas the students found difficult.

Chapter 4

COMPARISON OF REGULAR AND TELEPROMPTER INSTRUCTION [1]

INITIAL LEARNING AND TIME SAVINGS

In this study, comparison was made between two groups, the Experimental and the Control. The Control Group received their instruction in a conventional manner. The Experimental Group received three of the twelve blocks of instruction by teleprompter, and the remaining nine blocks in the conventional manner.

During the nine conventional (exams 2,3,4,5,7,8,9,11,12) blocks of instruction, no attempt was made to control either group. The Evaluation Group was interested in how both classes performed under normal conditions. Neither the instructors nor the students were aware that these nine blocks were being considered. The instructors for these nine periods were selected by their Instructional Section on the basis of the instructor's knowledge, ability and availability. It is a normal practice in the Instructional Sections to schedule the superior instructors with the less efficient instructors to maintain balanced instructional teams. With six different classes and nine conventional blocks it is felt that the instructor levels for each group are the same. No attempt was made by the Teleprompter Task Group to monitor the classrooms. Only normal evaluations by School evaluation personnel were made. The examinations used during these nine blocks were time proven exams that were available within the Instructional Sections. The exams were administered and critiqued by the instructors.

When the Experimental Group and the Control Group received instruction in the conventional manner for the nine blocks of the course, their examination scores were the same. Both groups averaged 66.0 scores.

[1] Detailed statistics are included in Appendix K.

Both groups received the same instructional material based on the Program of Instruction, during the three experimental periods when specialized equipment was used. The only difference was that the Experimental Group received this instruction from teleprompter scripts. The teleprompter equipment was used during the Fundamental Block, Plan Position Indicator Block, and Steering Computer Block. It was the purpose of the Task Group to determine, on a controlled basis, whether or not the Experimental Group could equal or exceed the academic achievement of the Control Group in a shorter period of time.

During the Fundamentals Block, the Experimental Groups averaged 69.3 and the Control Groups averaged 69.2 [1] The difference of one-tenth of a point is not significant. But, a time savings for this block of 27.7% was realized. This means that Experimental Groups learned as much as the Control Groups in a shorter period of time. This savings in time was brought about by superior use of training aids, pre-planning the scripts to eliminate excess words and time consuming chalkboard work. The pre-planned scripts prevented the instructors from rambling or straying from the text of their presentations and, in affect, caused the instructors to present the material in the most efficient manner that could be devised. During the third evaluation, in the Fundamental Block, an attempt was made to see how much time could be saved. A total of 41.1% was saved, but the student grades dropped slightly, indicating that the breaking point had been reached.

The Experimental Groups averaged 69.8, and the Control Groups averaged 68.1 on the Plan Position Indicator Block. The difference of 1.7 is in favor of the Experimental Groups, but the time savings decreased to 25.4%.

The Experimental Groups averaged 67.7, and the Control Groups averaged 59.7 on the Steering Computer Block. The difference in scores is 8.0, a substantial amount in favor of the Experimental Groups. There was a time saving of 26.9% in presenting this material to the experimental classes. These

[1] Figures indicating student performance are raw scores.

figures are indeed interesting, as the Steering Computer is considered to be one of the most difficult blocks of instruction in the school.

To summarize, during the three experimental periods when specialized equipment was used, the Experimental Groups either equaled or exceeded the Control Groups in raw scores. The Experimental Groups averaged 68.9 with an average of 26.9% savings in time, and the Control Groups averaged 65.7 on the experimental periods. The difference of 3.2 favors the Experimental Group.

STUDENT RETENTION

Nine weeks after the initial instruction, retention tests were administered without warning to check students' knowledge of the subject matter. On the Fundamental Block retest, both the Control and the Experimental Groups averaged higher than they did on the initial tests. The Experimental Groups averaged 74.5 and the Control averaged 72.9; the difference of 1.6 is in favor of the Experimental Group. The difference between initial and retest scores can best be explained by pointing out that the students used this information and knowledge during the course. The students did not use information on the PPI and Steering Computer blocks after the initial instruction, so the results are lower than the initial scores. The Experimental Groups averaged 58.4 and the Control Groups averaged 55.9 on the PPI retest, with a difference of 2.5 in favor of the Experimental Group. On the most difficult area, the Steering Computer Block, the Experimental Group averaged 54.2 and the Control Group averaged 47.1. The difference of 7.1 is again in favor of the Experimental Group. On the three retention tests the Experimental Group averaged 62.4 and the Control Group averaged 58.6, the difference being 3.8.

Chapter 5

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

It is concluded from the results of this study that when teleprompter and associated audio-visual aids are used to present technical instruction:

(1) Students obtain a higher degree of initial learning.

(2) Student retention is higher.

(3) Training time for lecture, conference, and demonstration type classroom presentations can be reduced by 25% to 30%.

(4) Complete coverage of the subject matter is assured each time the presentations are given.

(5) Flexibility of scheduling instructor personnel is increased. All catagories of instructional personnel derive distinct benefits from the use of teleprompter equipment, giving assurance of a high quality presentations.

(6) Maximum use is made of the abilities of highly specialized technical instructors.

RECOMMENDATIONS

(1) That the results of this study be recognized as a significant step forward in the fields of education and training.

(2) That studies be continued at USA OGMS.

(3) That duplicative studies be conducted at other military and civilian schools to confirm and expand the Teleprompter Group communication concept.

16

APPENDICES

Appendix A

TELEPROMPTER EQUIPMENT

The major items of teleprompter equipment used in
this evaluation study are the products of the TelePrompTer
Corporation, 311 West 43rd Street, New York 36, N. Y.

The teleprompter or reading unit, Figure 2, is the
basic component of this system. It provides an easily
controllable moving script for the instructor to read as
he stands in front of his class.
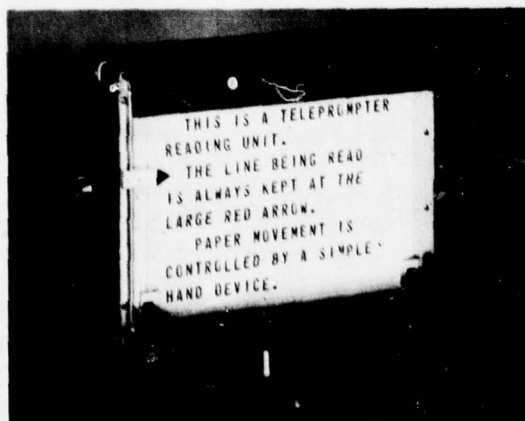
Teleprompter
Figure 2

The teleprompter presents
up to 9 lines of prepared
text in a shadow-free, non-
glare reading aperture.
The line of text being
spoken is pointed out by a
red arrow. Lighting, size,
shape, and color combination
of the text was scientifically
determined to permit comfortable
reading at up to 25 feet with
normal or corrected vision.

One to ten prompters can be
positioned at convenient
locations as determined by
the size and type of classroom,
but out of view of the audience.
The prompters operate
simultaneously -- line for line --
so that as the speaker looks from one place to another the same line
of text is visible.

If the instructor is thoroughly familiar with his subject or has partly memorized his text, the device is used only as a prompter. Reference to the text is made at the discretion of the instructor only when he feels the need for a cue or a brief reminder. If the text has been prepared by others and not memorized, it may be read word for word. In either event the speaker has complete student contact and complete freedom of movement. He is liberated from the fear of forgetting, the handling of notes, head bobbing, and other distracting mannerisms.
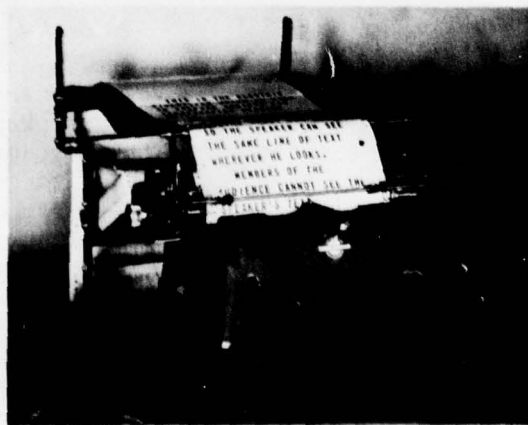
Script for use in the teleprompters is typed with a special typewriter, called a videotyper. Figure 3. It is an electric typewriter with one-half inch block letters. The script paper is yellow and comes fanfolded with carbon paper collated to enable preparation of identical copies for use in synchronized prompting. The keyboard can be operated at 40 to 50 words per minute by any typist.

Videotyper
Figure 3
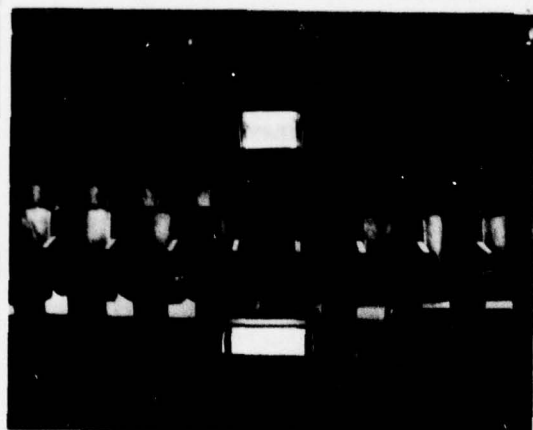
The speechvue is a device which reflects text from a mirror system to panels of glass positioned in front of the instructor. Figure 4. The panels of glass are reflective on the instructor's side only. On the students' side, glass allows students to see the instructor's face and permits him to maintain eye contact with the students as he speaks.

Speechvue
Figure 4

The lines of text are moved vertically by an assisting operator through means of a small hand control and master control panel. Figure 5. The instructor sets the pace of delivery. The script is moved only when he speaks the lines or covers the thought of the exposed text in his own words. He is free to go fast or slow, or to introduce new material at will.
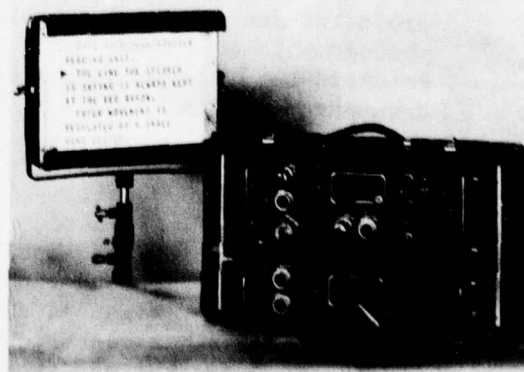
Control Panel
Figure 5
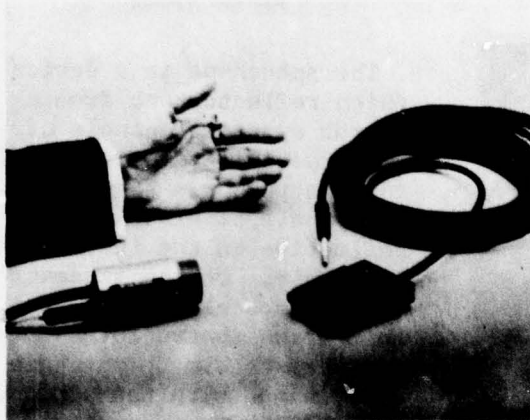
The hand control can be replaced by a foot or ring control for instructor operated presentations. Figure 6. These devices allow the instructor to take complete control of the script movements.

Foot & Ring Control
Figure 6

The rear screen projector, Figure 7, TelePro 6000 uses 3¼" x 4" slides. Slides for the projector are made with regular photographic equipment, or a Polaroid Land Camera with direct transparency film.

The light source for the projector is a 3000 watt, incandescent bulb projected through a newly designed optical system. There is enough light at the screen to present a clear picture with bright classroom lights, an important advantage in conferences where listeners are required to take notes. The projector was designed for rear-screen, short throw projection.
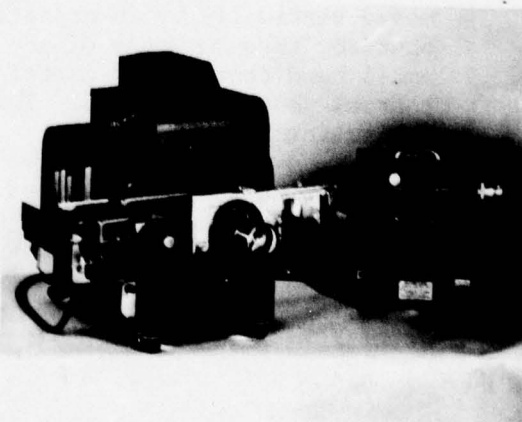
TelePro 6000
Figure 7
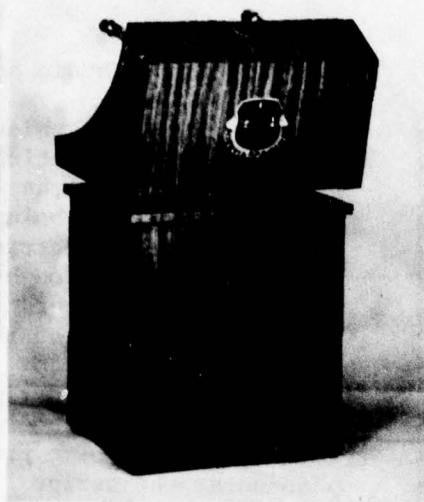
The lectern is equipped with an elevator to raise and lower the top for speakers of varying heights. Figures 8 and 9. On the speakers side there is space to hold a teleprompter, and outlets for microphones to a public address or broadcast system. A time of day clock is built in.

Lectern (front)
Figure 8

Fill lighting from a translucent panel in the table of the lectern washes out shadows from spot lights that might obscure part of the speaker's face.

Lectern (rear)
Figure 9

21

Telemation
Figure 10

Automation of audio and visual aids during presentations are achieved by the use of telemation, Figure 10. All of the effects capable of being activated by an electric switch are cued through telemation, and occur without any action on the part of the instructor except to read the script. Events take place according to the way they were pre-planned as the script progresses through the teleprompter.

Telemation is achieved by the use of small strips of adhesive-backed aluminum which are placed on a teleprompter script in channels assigned to specific effects. The aluminum strips can be placed in such relationship to a word of text, that any effects will occur exactly on word cue. Telemation frees the instructor from worry about such details during his presentation and assures proper use of training aids.

22

Appendix B

EXPERIMENTAL VS CONTROL CLASSROOMS

In order to fully utilize audio-visual aids, the conventional classroom had to be slightly modified. This modification was accomplished by personnel within USAOGMS.

The materials used to modify the experimental classroom are normally available in military school systems. This does not include the TelePrompTer equipment which was purchased for the evaluations.

A comparison of the conventional classroom Figure 11 with the experimental classroom Figure 12 reveals several interesting aspects of the use of teleprompter. Observations were made while classes were in and out of session.

A — CHALKBOARD
B — LECTERN
C — VUGRAPH PROJECTOR
D — STUDENT TABLES
E — SEATING FOR OBSERVERS
F — WINDOWS

Conventional Classroom
Figure 11

23
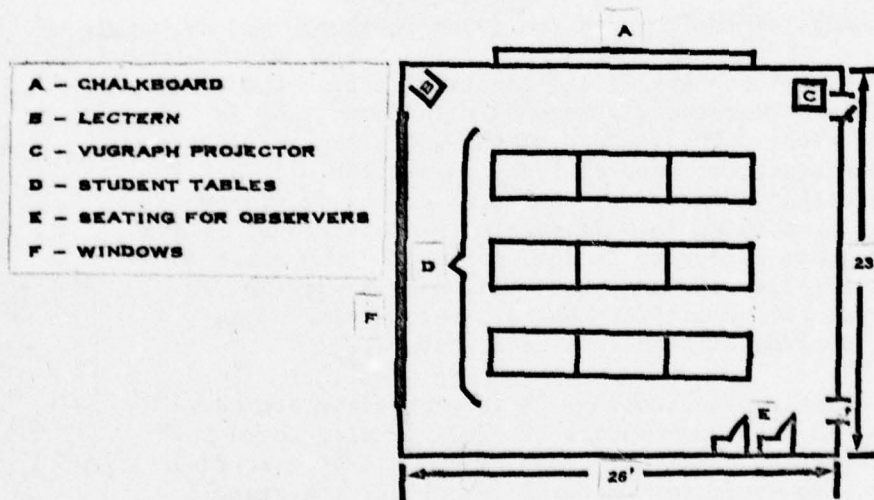
A – LECTERN

B – SPEACH VIEW

C – TELEPRO

D – STORAGE CABINET

E – REAR VIEW SCREEN

F – TELEPROMPTER

G – CONTROL UNIT

H – CHALK BOARD WITH
    BLACK AND WHITE LIGHTS

I – SEATING AREA

J – WINDOWS
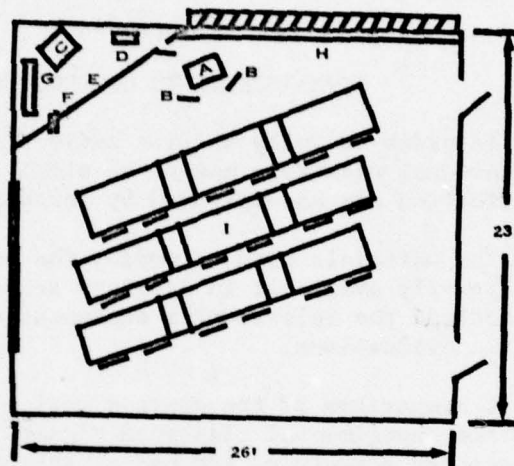
Experimental Classroom (detailed)
Figure 12

A summary of the observation is as follows:

(1) Lighting - Artificial lighting in both the conventional and experimental classrooms is the same, and is quite sufficient. The windows of the experimental classroom are painted black; no natural light is available. The window painting is necessary to increase the efficiency of the black lights used in teleprompter presentations. Black lights are most effective in semi-darkened rooms where no sunlight is reflected. Natural light is not used in conventional classrooms for several reasons, including security, outside distractions, and shadows.

(2) Heating and cooling - Both classrooms are heated and cooled in the same manner. It is generally known that ambient temperature may be raised by the use of electronic equipment. However, any increase in ambient temperature caused by the teleprompter equipment, which would come mainly from the Telepro projector, is negligible, and

24

approximately the same as that which is obtained from the Vugraph projector in conventional classrooms.

(3) Useable area - In the conventional classroom several square feet of floor space is unused. In the teleprompter equipped classroom, space is well used and not crowded.

(4) Student work area - An area available to the student in the experimental classroom is the same as the conventional classroom.

(5) Instructor area - The area used by the instructor is the same for both classrooms. In the experimental classroom the equipment and aids are so arranged that the instructor is not held to a specific spot, but allowed complete freedom of movement. Movement is encouraged by the use of various training aids located at different points around the room.

(6) Aids and Equipment - A conventional classroom has the standard Vugraph and 16mm projectors which are manually operated by the instructors. No special lighting such as spotlights is available for use on models, which could be used to arouse interest and clarify points. The projection screen and Vugraph are small enough to be seen

Operator and Control Equipment
Figure 13

only with difficulty from the rear of the room. In the
experimental classroom, the projection screen is twice
as large as the conventional classroom screen and uses
rear projection. All equipment is out of student view.
In the conventional classroom, the projector and its
noise may be a distraction, and the Vugraph will some-
times block the students view. The teleprompter
equipment makes the control of projectors, spotlights,
black lights, and the room lights completely automatic;
it requires no effort on the part of the instructor.
Other aids available in experimental classroom are flock
boards, spotlighted charts, training devices, and black
lights for use with fluorescent chalk or paint. This
does not mean that these aids cannot be used in conven-
tional classrooms; it simply shows how versatile the
teleprompter equipment is in automatically handling a
great variety of aids which would burden an instructor
in a conventional classroom.

(7) Distractions - The teleprompter equipment
has satisfactorily proven that it is no more distracting
than the Vugraph or the pointer used in the conventional
classroom. Cabling for the various pieces of equipment
was a source of distraction, but proper location and
installation has alleviated this entirely. Once the
student knows what the equipment is and what it is
doing, he has satisfied his curiosity and the equip-
ment, then, becomes a normal part of the room.

TELEPROMPTER EQUIPMENT IN THE EXPERIMENTAL CLASSROOM

1. TelePro 6000 and associated controls.

2. 3-5 Teleprompters.

3. 1 Master Control.

4. 2 Prompter Controls.

5. 1 Telemation unit and prompter fingers.

6. 1 6' x 8' rear screen.

7. 3 Speech-vues.

8. 1 Presidential lectern.

9. 1 Normal hand control.

10. 1 Spotlight.

11. 5 Blacklights.

12. 1 16mm Movie Projector.

13. Cables and wires for operation of prompter, TelePro, and telemation.

14. Blackboard lights.

Appendix C

EXPERIMENTAL GROUPS BACKGROUND DATA

		Number Students	Age	Years School	AGCT Score	EL 1/ Score	Components of EL 1/ EI Score	MA Score	Inventory Examination
Eval #1	Military	16	24.1	12.4	118.2	119.2	119.3	118.1	53.8
	Civilian	3	35.1	13.0	104.0				65.0
	Group	19	25.8	12.5	116.6	119.2	119.3	118.1	55.6
Eval #2	Military	11	28.4	12.7	123.3	127.2	127.0	128.4	52.6
	Civilian	7	30.6	11.7	128.3				59.6
	Group	18	29.2	12.3	125.2	127.2	127.0	128.4	55.3
Eval #3	Military	4	31.4	11.2	117.8	118.0	122.0	108.2	43.2
	Civilian	10	32.0	11.9	133.4				66.8
	Group	14	31.9	11.7	128.9	118.0	122.0	108.2	60.1
Eval #1-2-3	Military	31	26.6	12.3	119.9	121.8	122.4	120.5	52.0
	Civilian	20	32.0	12.0	128.4				64.0
	Group	51	28.7	12.2	123.2	121.8	122.4	120.5	56.7

1/ Information not available for civilian subjects

28

CONTROL GROUPS BACKGROUND DATA

		Number Students	Age	Years School	AGCT Score	EL 1/ Score	Components of EL 1/		Inventory Examination
							EI Score	MA Score	
Eval #1	Military	14	28.7	12.6	123.6	129.1	132.8	123.6	58.9
	Civilian	3	33.2	12.3	112.5	129.1	132.8	123.6	61.7
	Group	17	29.5	12.6	122.2	129.1	132.8	123.6	59.4
Eval #2	Military	6	30.1	13.2	120.5	126.2	126.2	122.0	53.0
	Civilian	6	34.3	12.2	110.0	126.2	126.2	122.0	51.0
	Group	1?	32.2	12.7	115.7	126.2	126.2	122.0	52.0
Eval #3	Military	9	26.7	12.4	123.4	127.0	125.9	126.1	55.7
	Civilian	8	33.4	11.9	129.1	127.0	125.9	126.1	68.1
	Group	17	29.8	12.2	126.1	127.0	125.9	126.1	61.5
Eval #1-2-3	Military	29	28.4	12.7	122.9	127.8	129.3	124.1	56.7
	Civilian	17	33.7	12.1	120.5	127.8	129.3	124.1	60.9
	Group	46	30.3	12.5	122.1	127.8	129.3	124.1	58.3

1/ Information not available for civilian subjects

Appendix D

INTERVIEW RECORD

CONTROL ( )
EXPERIMENTAL ( )

1. NAME_____

2. HOMETOWN_____

3. YEAR GRADUATED HIGH SCHOOL_____

   NO. IN GRADUATING CLASS_____

4. COLLEGE   YES ( ) NO ( )

   WHERE_____MAJOR_____

   GRADUATED YES ( ) NO ( ) DEGREE_____

   REASON FOR LEAVING, IF DID NOT GRADUATE

   _____

   _____

5. HOW LONG IN ARMY?_____

   PLAN TO STAY IN ARMY? YES ( ): NO ( ): DON'T KNOW ( )

6. CAREER GOAL_____

   _____

   _____

7. CIVILIAN JOB EXPERIENCE, INCLUDING TECH TRAINING

   _____

   _____

   _____

   _____

DATE_____   INTERVIEWER_____

Appendix E

UNITS OF INSTRUCTION ADAPTED TO TELEPROMPTER
NIKE-HERCULES ACQUISITION RADAR SYSTEM

Fundamentals Block

Subject	Hours	Scope of Instruction	Level of Difficulty Presentation	Retention
Radar Systems	2-C	**Familiarization With:** The principles of radar; to include operation and a block diagram of a basic radar system	1	1
Pulse Modulators	1-C	**Knowledge of:** Capacitor, inductor, and resonant type charging pulse modulators; pulse forming networks, bifilar wound transformers	2	2
Magnetrons	1-C	**Knowledge of:** Function, description, and operation of magnetrons	3	3
Transmission Lines	2-C,D	**Knowledge of:** Characteristic impedance, termination and reflection on transmission lines; to include resonant lines, stubs and impedance matching	3	3
Waveguides	1-C,D	**Knowledge of:** Cut off frequency, electromagnetic field patterns, round waveguides and their application	3	3

1 - Easy
2 - Average
3 - Difficult

31

Subject	Hours	Scope of Instruction	Level of Difficulty Presentation	Retention
TR & ATR Tubes Directional Couplers Crystal Mixers	2-C	Knowledge of: The function, description and opera- tion of directional couplers, Crystal Mixers TR and ATR Tubes	2	2
Radar Antennas	1-C	Knowledge of: Transmission line terminations, radiation patterns, reflectors, feed system, and metal lens	2	2
Klystrons	1-C TF	Knowledge of: Function, description and operation of klystrons.	2	2
Discriminators	1-C	Knowledge of: Function, operation and description of discriminators	3	3
Automatic Frequency Control	1-C	Knowledge of: Function, operation and description of AFC control units	2	2
Basic Servos	2-C,D	Knowledge of: Simple position and rate servos, multiple loop servos	1	1
Microwave RF Amplifiers	1-C	Knowledge of: Function, description and operation of the traveling wave tube	2	3

Subject	Hours	Scope of Instruction	Level of Difficulty Presentation	Retention
MTI Systems	1-C	Familiarization with: The principles of moving target indicating system to include a basic block diagram	2	2
Radar Indicators	1-C	Familiarization with: Type of radar displays to include a basic block diagram	1	1
Synchros & Resolvers	2-C,D TF	Knowledge of: Operation and application of synchros and resolvers	2	2
Ring Demodulators	1-C	Knowledge of: Ring Demodulators and vacuum tube commutators	1	2
Pulse Generators	4-C	Knowledge of: The operation and application of blocking oscillator, multivibrators and phantastron stages	2	2
Radar Range & Coincidence Tubes	2-C TF	Knowledge of: Radar measurement of range, use of coincidence tubes	1	2
Introduction to Test Equipment & Radar Operational Checks	1-C	Familiarization with: Basic radar system operational checks and test equipment to perform these tests	1	1
TS-352	1-C,D	Knowledge of: Function, description and operation of the TS-352	2	2

Subject	Hours	Scope of Instruction	Level of Difficulty Presentation	Retention
TS-505	1-C,D	Knowledge of: Function, description and operation of the TS-505	2	2
ME-51	1-C,D	Knowledge of: Function, description and operation of the ME-51	2	2
KS-15750-L2 Tube Tester	1-C,D	Knowledge of: Function, description and operation of a typical tube tester	2	2
AN/USM-32 Oscilloscope	2-C,D	Knowledge of: Function, description and operation of the AN/USM-32 oscilloscope	2	2
TS-239A Oscilloscope	2-C,D	Knowledge of: Function, description and operation of the TS-239A oscilloscope	2	2
Review	1-C	Review of all material presented to date in this annex	3	2

Note: Followed by 3 hour examination and critique

Summary of Fundamentals Block:

Hours	Level of Difficulty Presentation	Retention
41 Block	9 Easy	6 Easy
37 Teleprompter	22 Average	24 Average
	6 Difficult	7 Difficult

Subject	Hours	Scope of Instruction	Level of Difficulty Presentation	Retention
Presentation System Block Diagram	3-C	**Familiarization with:** The block diagram of the Acquisition Radar Presentation System; to include the purpose of all components, inputs and outputs	3	3
4 KC Oscillator Resolver Amplifier, Resolver System, Part I	4-C	**Knowledge of:** The function, description and operation of the 4 KC oscillator, the resolver amplifier, resolver system; to include basic resolver operation	2	3
		Familiarization with: The distribution of the 4 KC reference carrier and resolver signals		
PPI Block Diagram	1-C	**Familiarization with:** The block diagram of the plan position indicators; to include the purpose of all components	1	1
PPI Demodulators	1-C	**Knowledge of:** The function, description and operation of PPI Demodulators	2	2
PPI Sweep Generator	1-C	**Knowledge of:** The function, description and operation of the PPI sweep generator	2	2
PPI Sweep Amplifiers	1-C	**Knowledge of:** The function, description and operation of the PPI sweep amplifier for electromagnetic deflection	2	2

Subject	Hours	Scope of Instruction	Level of Difficulty Presentation	Retention
PPI Video Amplifier	1-C	Knowledge of: The function, description and operation of the PPI video amplifiers	2	3
GS-18384 Indicator 4-0150.202B (C)	6-C	Familiarization with: The block diagram of the GS-18384 Indicator (PPI) to include the purpose of all components and inputs and outputs Knowledge of: The description, function and operation of the chassis contained within this unit	3	3
Electronic Marker Generator (C)	2-C	Knowledge of: The description, function and operation of the Electronic Marker Generator	3	3
Review	1-C	Review of all material presented since review 252-2-5R	3	2

Note: Followed by 3 hour written examination with critique and a 4 hour performance test.

Summary of PPI Block:

Hours	Level of Difficulty	
	Presentation	Retention
33 Block	1 Easy	1 Easy
21 Teleprompter	8 Average	4 Average
	12 Difficult	16 Difficult

Steering Block

Subject	Hours	Scope of Instruction	Level of Difficulty Presentation	Retention
Steering Block Diagram	3-C	**Familiarization with:** The block diagram of the steering section of the NIKE HERCULES Computer; to include the purpose of all components, inputs and outputs	2	2
Steering Error Solver	3-C	**Knowledge of:** The circuits necessary to determine steering errors; to include the missile coordinate converter, closing speed solver, steering differentiators	2	2
Flight Angle Servos	2-C	**Knowledge of:** The circuits necessary to determine the missile flight angles, to include the missile rate converter, Climb & Turn Angle Servos and gimbal limit switching	2	2
Super Elevation & Glide Bias	2-C	**Familiarization with:** The purpose, operation, inputs and outputs of the Super Elevation & Glide Bias Circuits **Knowledge of:** The circuits necessary to determine Super Elevation & Glide Bias	3	3
Acceleration Order Solver	4-C	**Knowledge of:** The circuits necessary to determine acceleration orders, to include the Steering Error Converter	3	3

Subject	Hours	Scope of Instruction	Level of Difficulty Presentation	Retention
Fin Order Solver	4-C	Knowledge of: The circuits necessary to determine fin orders, to include loop equalization circuits and operation	3	3
Steering Time Servo	3-C	Knowledge of: The circuits necessary to determine the remaining time to intercept, to include switching and all servo components	3	3
Burst Order Circuits	2-C	Knowledge of: The circuits necessary for the determination of burst commands, to include the emergency burst order and relay switching	1	1
Order Limit Circuits	3-C	Knowledge of: The circuits necessary to prevent the generation of excessive missile acceleration or fin orders	2	2
Velocity Correction Servo	3-C	Familiarization with: The purpose, operation, inputs and outputs of the velocity correction servo

Knowledge of: The circuits necessary to determine velocity correction, to include the velocity correction servo, MBO timer and relay control | 2 | 2 |

Subject	Hours	Scope of Instruction	Level of Difficulty	
			Presentation	Retention
Target Acceleration Circuits	1-C	Knowledge of: The purpose and operation of the target acceleration circuits and their related circuitry	3	3
Steering Computer	4-C	Knowledge of: The over-all operation of the steering computer; to include the block diagram, relay operation from MA = 4 through burst and static testing of the steering computer	3	3
Review	1-C	Review of all material presented since review 252-3-2R	3	3

Note: Followed by 3 hour written examination with critique and 4 hour performance test.

Summary of Steering Block:

Hours	Level of Difficulty	
	Presentation	Retention
57 Block	2 Easy	2 Easy
35 Teleprompter	14 Average	14 Average
	19 Difficult	19 Difficult

Appendix F

TELEPROMPTER TASK GROUP

The organization within OGMS set up to perform these evaluation studies was the Teleprompter Task Group, which is now the Teleprompter Branch of Training Support Division. The direction and mission of this Teleprompter Task Group was formulated by the Office of the Commandant with the assistance of a Steering Committee and representatives of the Instructional Divisions. The Steering Committee consisted of the Educational Advisor to the Commandant, Director of Training, Comptroller, Chief of Research and Curriculum Division, and the Chief of Logistics Division.

All of the Group's activities were coordinated by the Group chief. He was advised by an operations specialist and a technical specialist of the TelePrompTer Corporation.

The Group, now Branch, was composed of three sections:

Technical Writing: This section contains personnel who adapt the conventional classroom presentations for use with the teleprompter system.

Script Typing: The script section prepares the writers manuscripts for teleprompter and provides typing support for the Group.

Operation Section: Enlisted technicians who operate and maintain the teleprompter equipment.

The organization of the Task Group is outlined in Figure 14.

Task Group Procedures

(1) Determination of appropriate hours of instruction as recommended by the Steering Committee and approved by the Office of the Commandant.

(2) Assignment of Tech Writing Teams to periods of instruction. Tech Writers will confirm the scheduling of conferences or dry runs, interview instructors, and procure lesson plans and instructional references.

(3) Method 1: Manuscripts are typed in draft form by Script section from recordings of dry runs or actual presentations. Tech Writing teams will edit and make necessary changes based on detailed notes obtained during the recording, and information available from approved lesson plans and references.

Method 2: Tech Writers will edit and review manuscripts prepared by the instructor.

(4) First draft manuscripts will be retyped and edited.

(5) Manuscript will be reviewed jointly by writers and instructor, training aids selected, cues inserted and timing determined.

(6) Training aids requests forwarded to Training Aids Branch and second draft manuscript to Script Section for final typing, review and edit.

(7) Final manuscript to Script Section for video typing.

(8) Script typed and proofread by Script Section. Notations will be made on script for props and stage positioning.

(9) Review and Telemation of script with instructor.

(10) Rehearsal held by instructor and technical writer.

(11) Appropriate revision made in script.

(12) Equipment and lesson package stored prior to presentation.

(13) Equipment and lesson package set up for presentation, Operators assigned, and technical check-out accomplished.

41

(14) Formal presentation held.

(15) Lesson package stored by the Training Division for next presentation.

(16) Prior to next presentation, lesson package is reviewed for correctness and continuing accuracy.

TELEPROMPTER TASK GROUP

OFFICE OF THE COMMANDANT

STEERING COMMITTEE

Educational Advisor
Director of Training
Comptroller
Ch, Research & Curriculum Division
Ch, Logistics Division

DIVISION REPRESENTATIVES

Director, Officer Training Division
Director, SAM Division
Director, SSM Division

TELEPROMPTER TASK GROUP

Group Chief
Chief Clerk
Stenographer

TECHNICAL ADVISORS

2 Contractors

SCRIPT SECTION

Section Chief
4 Clerk Typist

OPERATIONS SECTION

Section Chief
1 Maintenance Technician
1 Supply NCO
7 Operators

TECHNICAL WRITING SECTION

10 Contract Writers

Organization of Teleprompter Task Group (January 58 - June 1959)

Figure 14

43

Appendix G

PREPARATION OF MATERIALS

Teleprompter Manuscripts

Teleprompter scripts are developed by technical writers from Dictabelt recordings of conventional classroom presentations, existing lesson plans, reference material, and interviews with instructors. Any one or all of these methods are used, depending on the status of the subject matter to be developed.

Recordings are transcribed by typists in rough drafts and returned to the writer. The writer revises the draft, removing unnecessary words or adding words as necessary, to insure that the script is easily read in a conversational manner. The writer reviews for continuity and organization of material when necessary. Questions are inserted throughout the script to increase effectiveness.

When recordings are not made, the writer develops the manuscript from interviews with instructors, lesson plans, references, etc. This manuscript is typed and reviewed the same as a recorded manuscript.

The writer or a visualizer determines the training aids to be used. The necessary administrative steps are taken to procure these aids. The training aids and their sequence of presentation is recorded with the manuscript according to the format.

The revised manuscript is reviewed by technical personnel or a technical editor for technical accuracy. If reviewed by the latter the script is reviewed for technical accuracy, conversational delivery, grammar, etc., eliminating technical review by another agency.

When a technical editor was not available, the manuscript is read aloud to a small group of writers to assure clarity and technical accuracy.

After all corrections or changes are made using the above methods the manuscript is typed in the proper format. From this final manuscript, the video script is prepared and telemated.

Script Processing

Script processing begins with the first draft typing of a manuscript from the technical writers notes or Dictaphone belts.

(1) Dictabelts: Dictaphone belts are transcribed into triple spaced drafts which are returned to the responsible technical writer for technical and readability review. A final manuscript is then prepared by the typists. In some instances, this final manuscript becomes a second draft due to the quality of the recording.

(2) Technical Writers Notes: The notes are typed into triple spaced drafts which are reviewed by the technical writer for technical accuracy and readability. The first draft is retyped into a final manuscript.

The final manuscript contains all cues, training aids, script cover sheet, etc.

The final manuscript is read by the technical writers (or by qualified technical editors) to insure proper readability, then it is typed on video paper.

After video typing, the collated carbon paper is removed and the video script proofread. Corrections are made with "tape outs" and flow pens, cues and training aids are "blocked-in".

Normally, instructional scripts are typed on 4 part video paper requiring 3 clerk typists for proofing. If 6 part paper is used 4 clerk typists are required.

One video typist reads the manuscript aloud as proofreaders each correct and block two copies of the video script.

The administration of script processing is channeled from the technical writers through the administrative office to script section. Internal administration and security controls make this an important channel.

Training Aids

Training aids to support teleprompter presentations are conceived by the joint efforts of the technical writer, instructor providing the technical information, and a training aids visualizer. Aids are requested from Training Aids Branch through proper administrative channels.

Training aids are ordered as soon as the manuscript writing is sufficiently completed to indicate the need and types of training aids required. A variety of training aids and effects are incorporated into each presentation to insure an effective segment of instruction.

The types of training aids used to support teleprompter presentations are: telepro slides, 35mm slides, 16mm training films, 35mm strip films, models, mock ups, tape recordings, charts, flock cards, magnetic cards, venetian blind charts, and chalkboard work using various chalks.

The telemation effects used with the teleprompter system: telepro slide changes, 35mm slide changes, operation of 16mm projector, control of classroom lights, chalkboard lights, spot lights, and "black lights", and operation of tape recorder.

Appendix H

STUDENT QUESTIONNAIRE

		*	A	B	C	D	NR
1.	Instructors used training aids more effectively in teleprompter classes than in ordinary classes......		64.6%	27.1%	4.2%	4.2%	
2.	I learned more in ordinary classes than in teleprompter classes......................		33.3%	33.3%	20.8%	12.5%	
3.	I understood explanations better in teleprompter classes than in ordinary classes......................		22.9%	20.8%	22.9%	33.3%	
4.	I learned faster in teleprompter classes than in ordinary classes........		18.8%	45.8%	25.0%	10.4%	
5.	More time was wasted in ordinary classes than in teleprompter classes.......		37.5%	18.8%	16.7%	25.0%	2.1%
6.	I was better prepared for PE's in teleprompter classes than in ordinary classes...		8.3%	14.6%	25.0%	47.9%	4.2%
7.	I paid better attention in teleprompter classes than in ordinary classes........		37.5%	29.2%	12.5%	20.8%	
8.	I was more interested in ordinary classes than in teleprompter classes.......		20.8%	31.2%	18.8%	27.1%	2.1%
9.	I was able to take better notes in ordinary classes than in teleprompter classes		60.4%	12.5%	6.3%	20.8%	

47

	*	A	B	C	D	NR
10. I felt free to ask more questions in ordinary classes than in teleprompter...........		58.3%	18.8%	2.1%	20.8%	
11. Instructors seemed more at ease and natural in teleprompter classes than in ordinary classes.....		10.4%	8.3%	27.1%	54.2%	
12. Teleprompter equipment interferred with the class and instruction in teleprompter classes more than conventional training aids did in ordinary classes		22.9%	12.5%	14.6%	47.9%	2.1%

* A--Agree
  B--Probably Agree
  C--Probably Disagree
  D--Disagree
NR---No Response

Appendix I

INSTRUCTOR QUESTIONNAIRE

		A	B	C	D
1.	Instruction with Teleprompter system makes better use of Training Aids than conventional instruction.....................	81.8%	18.2%		
2.	Students participate more freely when receiving instruction with Teleprompter than in a conventional class situation.................	4.5%	22.7%	31.8%	40.9%
3.	Instruction with Teleprompter does not capture and hold student interest as well as conventional instruction.	4.5%	22.7%	36.4%	36.4%
4.	The Teleprompter system helps instructors present instruction more effectively....................	40.9%	40.9%	9.1%	9.1%
5.	The Teleprompter system restricts the instructor.....................	27.3%	9.1%	36.4%	27.3%
6.	Students learn more in classes presented with Teleprompter than in conventional classes..........	9.1%	50%	36.4%	4.5%
7.	A Teleprompter classroom conference does not serve to instruct as well as a conventional classroom conference.......................	4.5%	22.7%	22.7%	50.0%
8.	Teleprompter instruction wastes time............................		4.5%		95.5%
9.	Superior instructors get more help from Teleprompter than do average instructors......................			45.5%	54.5%

	*	A	B	C	D
10. Brighter students profit more from Teleprompter instruction than do slower students........		22.7%	31.8%	27.3%	18.2%
11. Students can take better notes in conventional classes than in Teleprompter classes................		27.3%	27.3%	18.2%	27.3%
12. Teleprompter equipment interferes with classroom instruction...........		4.5%	9.1%	27.3%	59.1%

*A--Agree
 B--Probably Agree
 C--Probably Disagree
 D--Disagree

Appendix J

EVALUATIONS OF EXPERIMENTAL GROUP INSTRUCTION

Observations

A summary of the monitors comments regarding experimental group instruction is as follows:

(1) A definite time savings is realized.

(2) The presentation is better, if the script is followed closely.

(3) Any "ad lib" remarks that are required should be made after that point has been covered in the script.

(4) Training aids should be used frequently during a presentation.

(5) Platform techniques should never be forgotten.

(6) When the instructor follows the script closely he is less likely to lose the students.

(7) Rehearsal is necessary for a good presentation.

(8) Poor platform techniques can be partly overcome by good scripts and organization of subject matter.

(9) The more familiar an instructor is with teleprompter, the better job he does.

(10) Young instructors with less teaching experience do as well as instructors with many years of experience.

Methods Evaluation Form

The standard USA OCMS Evaluation Form was used to evaluate each period of experimental instruction. Seven areas were considered and rated by this form. Each area is properly weighted by a point system which enables the evaluator to arrive at an adjectival rating. The adjectival rating for all experimental group instruction averaged EXCELLENT, which is above school standards.

UNITED STATES ARMY
ORDNANCE GUIDED MISSILE SCHOOL
STANDARDS BRANCH
REDSTONE ARSENAL, ALABAMA

NR. STUDENTS _____   GRADE _____

METHODS EVALUATION

INSTRUCTOR _____ CLASS _____ DATE & TIME _____

SUBJECT _____ FILE NR _____ HOUR & TYPE _____

DIVISION _____ BRANCH _____ SECTION _____ BLDG _____

	I			S		G		EX		SUP	
	.6	1	1.5	2		3		4		5	

1.   **INTRODUCTION**
____ Arouse Interest
____ Tie-in
____ Objectives Clarified

2.   **EXPLANATION**
____ Organization
____ Adaptation
____ Vitalization
____ Emphasis
____ Summaries

3.   **PARTICIPATION**
____ Methods Used
____ Quest. Techniques
____ Control
____ Interest
____ Application
____ Check-up

4.   **SPEECH**
____ Understandable
____ Conversational
____ Fluent
____ Convincing

5.   **INSTRUCTOR QUALITIES**
____ Appearance
____ Confidence
____ Attitude
____ Eye Contact
____ Mannerisms

6.   **TRAINING AIDS**
____ Utilization
____ Suitability
____ Condition

7.   **PREPARATION**
____ Management
____ Timing
____ Facilities
____ Lesson Plan

ORDHB—OGMS 74, Rev 21 Mar 57 (Replaces Edition of 17 Jan 56 Which Will Not Be Used)   Army-Redstone Arsenal, Ala.

USE AND INTERPRETATION OF EVALUATION SHEET

SUB AREA RATING	ADJECTIVAL RATING	GRADE RANGE	DESCRIPTION
5	Superior	95-100	Outstanding.
4	Excellent	88-94	Above School standards.
3	Good	78-87	School Standard.
2	Satisfactory	72-77	Acceptable but needs close supervision and guidance.
1	Inadequate	71-	Needs extensive remedial work.

OBSERVATIONS:

RECOMMENDATIONS:

_____
Educational Specialist

METHODS EVALUATION TEMPLATE

```
50   58   64   70   74   78   83   88   91   95   100
:    .    .    :    .    :    .    :    .    :    :
```

```
125  145  160  175  185  195  208  220  228  238  250
:    .    .    :    .    :    .    :    .    :    :
```

```
50   58   64   70   74   78   83   88   91   95   100
:    .    .    :    .    :    .    :    .    :    :
```

```
75   87   96   105  111  117 124  132  136  142  150
:    .    .    :    .    :    .    :    .    :    :
```

```
50   58   64   70   74   78   83   88   91   95   100
:    .    .    :    .    :    .    :    .    :    :
```

```
75   87   96   105  111  117  125  132 137  143  150
:    .    .    :    .    :    .    :    .    :    :
```

```
75   87   96   105  111  117  124  132  136 142  150
:    .    .    :    .    :    .    :    .    :    :
```

NOTE: This is a transparent template which is placed over
the Methods Evaluation Form to provide the evaluator
with a numerical grade.

Appendix K

STATISTICAL DATA

TELEPROMPTER VS CONVENTIONAL TIME [1]

	SUBJECT	POI [2]	CONTROL	EXPERIMENTAL	PERCENT TIME-SAVING
EVAL #1	Fund	1850	1850	1540	16.8%
	PPI	1050	1050	877	16.5%
	Steering	1750	1750	1322	24.5%
	TOTAL	4650	4650	3739	19.6%
EVAL #2	Fund	1850	1850	1386	25.1%
	PPI	1050	1100 [3]	780	29.1%
	Steering	1750	1750	1280	26.9%
	TOTAL	4650	4700	3446	26.7%
EVAL #3	Fund	1850	1850	1089	41.1%
	PPI	1050	1100 [3]	769	30.1%
	Steering	1750	1750	1234	29.5%
	TOTAL	4650	4700	3092	34.2%
EVAL #1-2-3	Fund	1850	1850	1338.2	27.7%
	PPI	1050	1083.3 [3]	808.7	25.4%
	Steering	1750	1750	1278.7	26.9%
	TOTAL	4650	4683.3	3425.6	26.9%

1/ Time in minutes
2/ Program of Instruction
3/ Scheduled under a purposed POI change

CONFERENCE SCORES (RAW) 1/
EXPERIMENTAL GROUPS
NIKE-HERCULES/AJAX ACQ & COMPUTER COURSE

		1 2/	2	3	4	5	6 2/	7	8	9	10 2/	11 2/	12 2/	MEAN 1-6-10	MEAN 2-3-4-5-7-8-9-11-12
EVAL #1	Military	63.5	44.7	50.5	48.2	55.5	60.0	48.8	48.5	46.9	60.0	64.5	76.6	61.2	53.8
	Civilian	77.3	72.0	84.0	72.0	80.0	76.4	77.3	80.0	60.0	66.6	74.7	88.0	73.4	76.4
	Group	65.7	49.1	55.8	52.0	59.4	62.7	53.3	53.8	49.1	61.1	66.2	78.2	63.2	57.4
EVAL #2	Military	69.5	58.9	73.1	72.7	73.1	70.4	70.5	63.2	51.6	67.6	65.1	82.6	69.2	61.1
	Civilian	70.3	53.7	66.0	66.9	60.0	70.8	66.9	67.4	57.9	66.3	60.6	77.7	69.1	64.1
	Group	69.8	56.9	70.6	70.4	68.0	70.6	69.1	64.9	54.2	67.1	63.3	80.7	69.2	66.5
EVAL #3	Military	64.0	49.0	75.0	75.0	71.0	72.9	69.0	58.0	61.5	66.0	70.0	79.0	67.6	67.5
	Civilian	77.2	57.2	79.6	87.2	84.8	80.0	84.8	81.2	71.4	81.2	85.6	87.2	79.5	80.0
	Group	73.4	54.9	78.3	83.7	80.9	78.0	80.3	74.6	68.6	76.9	81.1	84.9	76.1	76.4
EVAL #1-2-3	Military	65.7	50.3	61.7	60.4	63.7	65.4	59.1	54.9	50.6	63.6	65.5	79.2	64.9	60.6
	Civilian	74.8	58.2	76.0	77.8	75.4	76.5	77.4	76.2	65.0	73.8	75.2	84.0	75.0	73.9
	Group	69.3	53.4	67.1	67.2	68.3	69.8	66.3	63.6	56.4	67.7	69.4	81.1	68.9	66.0

1/ All figures based on total number of students per category
2/ Experimental period

55

CONFERENCE SCORES (RAW) 1/
CONTROL GROUPS
NIKE-HERCULES/AJAX ACQ & COMPUTER COURSE

		1 2/	2	3	4	5	6 2/	7	8	9	10 2/	11	12	MEAN 1-6-10	MEAN 2-3-4-5-7-9-11-12
EVAL #1	Military	65.1	52.1	64.9	58.9	55.0	58.6	56.9	51.7	59.9	51.4	63.7	73.1	58.4	61.0
	Civilian	68.0	68.0	82.7	73.3	68.3	77.8	66.7	77.3	61.3	57.3	64.0	85.3	67.7	71.9
	Group	65.6	54.9	68.0	61.4	57.3	62.2	58.6	56.2	60.1	52.5	63.8	75.3	60.1	61.7
EVAL #2	Military	68.0	45.3	66.7	69.3	67.3	70.8	74.7	69.3	69.3	74.7	82.7	75.3	71.2	68.9
	Civilian	64.0	62.7	72.7	80.6	78.7	75.0	72.0	76.7	74.0	64.8	81.3	80.0	67.7	75.4
	Group	66.0	54.0	69.7	75.0	73.0	72.9	73.3	73.0	71.7	70.2	82.0	77.7	69.7	72.2
EVAL #3	Military	74.0	63.1	60.4	61.3	70.2	67.1	62.4	53.8	51.1	57.3	61.6	76.6	66.1	62.3
	Civilian	76.5	65.5	70.5	72.0	71.5	74.0	70.5	75.0	56.0	63.5	68.6	79.4	71.3	69.9
	Group	75.3	64.2	65.6	66.4	70.8	70.3	66.2	63.8	53.4	60.2	65.1	78.0	68.6	65.9
EVAL #1-2-3	Military	68.3	54.1	63.9	61.8	62.3	64.0	62.3	56.0	59.1	58.1	67.3	74.6	63.5	62.4
	Civilian	70.6	65.1	73.4	75.3	73.5	75.0	70.4	76.0	63.3	62.8	72.3	80.6	69.5	72.2
	Group	69.2	58.2	67.4	66.8	66.4	68.1	65.3	63.4	60.7	59.7	69.2	76.9	65.7	66.0

1/ All figures based on total number of students per category
2/ Experimental period

RETENTION SCORES (RAW) 1/

TELEPROMPTER VS CONVENTIONAL INSTRUCTION

		FUND			PPI			STEERING			MEAN		
		EXP	CON	PTS DIFF	EXP	CON	PTS DIFF	EXP	CON	PTS DIFF	EXP	CON	PTS DIFF
EVAL #1	Military	67.7	69.5	1.8	49.1	46.1	3.0	51.5	42.2	9.3	56.1	52.6	3.5
	Civilian	86.7	76.0	10.7	72.9	56.9	16.0	60.0	46.0	14.0	73.2	59.6	13.6
	Group	71.2	70.8	.4	52.0	48.0	4.0	52.5	42.7	9.8	58.6	53.8	4.8
EVAL #2	Military	72.8	67.3	5.5	54.5	53.5	1.0	49.1	54.7	5.6	58.8	58.5	.3
	Civilian	76.0	70.0	6.0	54.2	65.3	11.1	51.3	50.0	1.3	60.5	61.8	1.3
	Group	74.1	68.7	5.4	54.4	59.4	5.0	49.9	53.5	3.6	59.5	60.5	1.0
EVAL #3	Military	67.0	72.5	5.5	58.3	60.4	2.1	54.0	42.5	11.5	59.8	58.5	1.3
	Civilian	83.2	84.0	.8	76.7	63.0	13.7	67.0	54.3	12.7	75.6	67.1	8.5
	Group	78.6	78.2	.4	71.4	61.7	9.7	62.7	48.0	14.7	70.9	62.6	8.3
EVAL #1-2-3	Military	69.5	69.9	.4	52.4	51.8	.6	50.9	45.0	5.9	57.6	55.6	2.0
	Civilian	81.2	77.6	3.6	68.0	62.7	5.3	60.2	52.0	8.2	69.8	64.1	5.7
	Group	74.5	72.9	1.6	58.4	55.9	2.5	54.2	47.1	7.1	62.4	58.6	3.8

1/ Test administered 9 weeks after initial instruction

57